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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/273,197	03/19/1999	ROBERT T. GALLAGHER	500.714US1	6784

34206 7590 12/31/2003

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EXAMINER	
RYMAN, DANIEL J	
ART UNIT	PAPER NUMBER
2665	21

DATE MAILED: 12/31/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/273,197	GALLAGHER, ROBERT T.	
	Examiner	Art Unit	
	Daniel J. Ryman	2665	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *26 November 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-16 and 18-22* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-16 and 18-22* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. §§ 119 and 120

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

13)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

a) ☐ The translation of the foreign language provisional application has been received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) *18*.
4) ☐ Interview Summary (PTO-413) Paper No(s). _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other:

DETAILED ACTION

Response to Arguments

1. Applicant's arguments with respect to claims 1-16 and 18-22 have been considered but are moot in view of the new ground(s) of rejection.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-3, 7, 9-11, 13-16, 18, 20, and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farhan et al (USPN 6,373,611) in view of Dail (USPN 5,878,325).

4. Regarding claims 1 and 13, Farhan discloses a hybrid fiber/coax network, comprising: a head end (ref. 105) (col. 1, lines 10-21 and col. 1, line 63-col. 2, line 25); at least one optical distribution node (ref. 115) coupled to the head end over at least one fiber optic link (ref. 110) (col. 1, lines 10-21 and col. 1, line 63-col. 2, line 25); a plurality of coaxial cable links (ref. 120) coupled to each of the at least one optical distribution node (col. 1, lines 10-21 and col. 1, line 63-col. 2, line 25); a transmitter, disposed at the optical distribution node, that is responsive to signals from the plurality of coaxial cable links, that converts analog signals to digital signals and that transmits the digital signals to the head end over the at least one optical link (ref. 200) (col. 2, lines 26-67); and a receiver, disposed at the head end, that is responsive to the digital signals from the transmitter and that converts the digital signals to analog signals for the head end (ref. 305) (col. 3, lines 1-25). Farhan does not explicitly disclose that the digital signals are baseband

digital signals; however, Farhan does disclose that the headend receives a modulated signal, demodulates the modulated signal to baseband, and then converts this baseband signal to an optical signal for transmission downstream (col. 1, line 63-col. 2, line 14). Dail teaches, in a hybrid fiber-coax system, having the digital signals be baseband digital signals in order to reduce ingress noise (abstract; col. 4, lines 22-39; and col. 4, line 64-col. 5, line 30). It would have been obvious to one of ordinary skill in the art at the time of the invention to use baseband digital signals in order to reduce ingress noise.

5. Regarding claims 2 and 14, referring to claims 1 and 13, Farhan in view of Dail does not expressly disclose that the transmitter includes a analog to digital converter that is operable to generate at least 850 Megabits per second; however, Farhan in view of Dail does disclose an A/D converter that is operable to generate a rate (Farhan: col. 1, lines 10-21 and col. 1, line 63-col. 2, line 25). It is generally considered to be within the ordinary skill in the art to adjust, vary, select, or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value. The burden of showing criticality is on applicant. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937); Marconi Wireless Telegraph Co. v. U.S., 320 U.S. 1, 57 USPQ 471 (1943); In re Schneider, 148 F.2d 108, 65 USPQ 129 (CCPA 1945); In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1055); In re Saether, 492 F.2d 849, 181 USPQ 36 (CCPA 1974); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Since Farhan in view of Dail discloses an A/D converter that is operable to generate a rate, it would have been obvious to generate any rate, including at least 850 Megabits per second, absent a showing of criticality by Applicant.

6. Regarding claims 3, 15, and 16, referring to claims 1 and 13, Farhan in view of Dail discloses that the transmitter separately converts signals from the plurality of coaxial cables into separate, n-bit signals, and combines the separate n-bit signals into a serial data stream (Farhan: Fig. 5; col. 4, lines 47-65; and col. 5, lines 27-53).

7. Regarding claim 7, Farhan discloses a transmitter for an optical distribution node, the transmitter comprising: at least one analog to digital converter that creates digital data from the return path signals (Fig. 5; col. 2, lines 40-67; col. 4, lines 30-46; and col. 5, lines 27-45); at least one multiplexer, responsive to the at least one analog to digital converter, that creates a serial data stream from the digital data from the at least one analog to digital converter (Fig. 5; col. 2, lines 40-67; col. 4, lines 30-46; and col. 5, lines 10-45); and an optical transmitter, responsive to the at least one multiplexer, that is operable to transmit the serial data stream to a head end as a digital signal (Fig. 5; col. 2, lines 40-67; col. 4, lines 30-46; and col. 5, lines 27-45). Farhan does not explicitly disclose at least one bandpass filter that is operable to select a portion of the frequency spectrum that is associated with return path signals for a hybrid fiber/coax network, where the A/D converter is responsive to the at least one bandpass filter; however, Farhan does disclose that the return path signals for a hybrid fiber/coax network are associated with a portion of the frequency spectrum (col. 5, lines 46-52). Farhan also discloses the use of filters to select a portion of a frequency band (col. 3, lines 15-26). Therefore it would have been obvious to one of ordinary skill in the art at the time of the invention to have at least one bandpass filter that is operable to select a portion of the frequency spectrum that is associated with return path signals for a hybrid fiber/coax network, where the A/D converter is responsive to the at least one bandpass filter, in order to select the signals on the return path of the coax network. Farhan does

not explicitly disclose that the digital signals are baseband digital signals; however, Farhan does disclose that the headend receives a modulated signal, demodulates the modulated signal to baseband, and then converts this baseband signal to an optical signal for transmission downstream (col. 1, line 63-col. 2, line 14). Dail teaches, in a hybrid fiber-coax system, having the digital signals be baseband digital signals in order to reduce ingress noise (abstract; col. 4, lines 22-39; and col. 4, line 64-col. 5, line 30). It would have been obvious to one of ordinary skill in the art at the time of the invention to use baseband digital signals in order to reduce ingress noise.

8. Regarding claim 9, referring to claim 7, Farhan in view of Dail does not expressly disclose that the bandpass filter include a pass band in the range from 5 to 42 MHZ; however, Farhan in view of Dail does suggest that the bandwidth filter would have a pass band in the range from 5 to 40 MHZ (Farhan: col. 5, lines 46-52). It is generally considered to be within the ordinary skill in the art to adjust, vary, select, or optimize the numerical parameters or values of any system absent a showing of criticality in a particular recited value. The burden of showing criticality is on applicant. In re Mason, 87 F.2d 370, 32 USPQ 242 (CCPA 1937); Marconi Wireless Telegraph Co. v. U.S., 320 U.S. 1, 57 USPQ 471 (1943); In re Schneider, 148 F.2d 108, 65 USPQ 129 (CCPA 1945); In re Aller, 220 F.2d 454, 105 USPQ 233 (CCPA 1055); In re Saether, 492 F.2d 849, 181 USPQ 36 (CCPA 1974); In re Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977); In re Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980). Since Farhan in view of Dail suggests that the pass and would have a frequency range, it would have been obvious to have any frequency range, including from 5 to 42 MHZ, absent a showing of criticality by Applicant.

9. Regarding claim 10, referring to claim 7, Farhan in view of Dail discloses that the at least one analog to digital converter includes one analog to digital converter for each coaxial link associated with the transmitter (Farhan: Fig. 5; col. 4, lines 47-65; and col. 5, lines 27-53).

10. Regarding claim 11, referring to claim 7, Farhan in view of Dail, as broadly defined, discloses that the at least one multiplexer comprises: one first stage multiplexer for each coaxial link associated with the transmitter (P/S) (Fig. 5; col. 4, lines 47-65; and col. 5, lines 10-45); and an additional multiplexer coupled to the output of each of the first stage multiplexers (interleaver) (Fig. 5; col. 4, lines 47-65; and col. 5, lines 10-45).

11. Regarding claim 18, Farhan discloses a receiver for a digital data return path of a head end in a hybrid fiber/coax network, the receiver comprising: an optical receiver that is operable to receive a serial, digital signal from an optical link (Fig. 6; col. 3, lines 1-26; and col. 4, line 66-col. 5, line 45); at least one demultiplexer, responsive to the optical receiver, that demultiplexes the digital signal (Fig. 6; col. 3, lines 1-26; and col. 4, line 66-col. 5, line 45); at least one digital to analog converter, responsive to the at least one demultiplexer, that creates analog signals for the head end (Fig. 6; col. 3, lines 1-26; and col. 4, line 66-col. 5, line 45); and at least one filter that (Fig. 6; col. 3, lines 1-26; and col. 4, line 66-col. 5, line 45), where Farhan implicitly discloses that the filter is operable to compensate for quantization effects in the frequency spectrum that is associated with return path signals for a hybrid fiber/coax network. Farhan does not explicitly disclose that the digital signals are baseband digital signals; however, Farhan does disclose that the headend receives a modulated signal, demodulates the modulated signal to baseband, and then converts this baseband signal to an optical signal for transmission downstream (col. 1, line 63-col. 2, line 14). Dail teaches, in a hybrid fiber-coax system, having

the digital signals be baseband digital signals in order to reduce ingress noise (abstract; col. 4, lines 22-39; and col. 4, line 64-col. 5, line 30). It would have been obvious to one of ordinary skill in the art at the time of the invention to use baseband digital signals in order to reduce ingress noise.

12. Regarding claim 20, referring to claim 18, Farhan in view of Dail discloses that the at least one digital to analog converter includes one digital to analog converter for each coaxial link associated with the receiver (Farhan: Fig. 6; col. 4, line 66-col. 5, line 10; and col. 5, lines 27-45).

13. Regarding claim 21, referring to claim 18, Farhan in view of Dail discloses that the at least one demultiplexer comprises: one first stage demultiplexer for each coaxial link associated with the receiver (S/P) (Fig. 6 and col. 4, line 66-col. 5, line 45); and an additional demultiplexer coupled to an input of each of the first stage demultiplexers (disinterleaver) (Fig. 6 and col. 4, line 66-col. 5, line 45).

14. Claims 4, 8, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farhan et al (USPN 6,373,611) in view of Dail (USPN 5,878,325) as applied to claims 1, 7, and 18 above, and further in view of Smith, III (USPN 4,112,488).

15. Regarding claims 4, 8, and 19, referring to claims 1, 7, and 18, Farhan in view of Dail does not expressly disclose that the transmitter incorporates data from a status monitor that monitors the operation of the optical distribution node and that creates status data for transmission to a head end in the serial baseband digital signal transmitted to the head end or that the at least one demultiplexer removes status data for the head end from the serial baseband signal. Smith teaches having a node monitor which reports data to a central control node so that

the central control node can "take action to control the use of links associated with the node" if there are any problems with the node (col. 6, lines 27-32; col. 10, lines 56-65; and col. 11, lines 29-). It would have been obvious to one of ordinary skill in the art at the time of the invention to have the transmitter incorporate data from a status monitor that monitors the operation of the optical distribution node in the baseband signal transmitted to the head end and to have the at least one demultiplexer remove the status data for the head end from the serial baseband signal in order to inform the head end of the information collected by the status monitor.

16. Claims 5, 12, and 22 are rejected under 35 U.S.C. 103(a) as being unpatentable over Farhan et al (USPN 6,373,611) in view of Dail (USPN 5,878,325) as applied to claims 1, 7, and 18 above, and further in view of Sayeed et al (USPN 5,828,677).

17. Regarding claims 5, 12, and 22, referring to claims 1, 7, and 18, Farhan in view of Dail does not expressly disclose that the transmitter incorporates bit error rate link performance data that is coupled to the at least one multiplexer into the baseband digital signal transmitted to the head end or that the at least one demultiplexer removes bit error rate data from the serial baseband signal. Sayeed teaches, in a communication system, sending line information, such as BER, back to a transmitter in order to allow the transmitter to use that information to adjust transmission characteristics (col. 2, lines 35-46). It would have been obvious to one of ordinary skill in the art at the time of the invention to incorporate bit error rate link performance data into the baseband digital signal transmitted to the head end and to have the demultiplexer remove the data from the signal in order to permit the head end to use the data in a manner which ensures low BER on the line by adjusting the transmission properties at the head end.

18. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Farhan et al (USPN 6,373,611) in view of Dail (USPN 5,878,325) as applied to claim 1 above, and further in view of Johnson et al (USPN 3,995,144) and Petroff (USPN 5,198,989).

19. Regarding claim 6, referring to claim 1, Farhan in view of Dail does not expressly disclose that the transmitter combines signals from the plurality of coaxial cables prior to converting the signals to baseband digital signals. Rather Farhan in view of Dail discloses that the transmitter converts the signals from the coaxial cables prior to combining the signals (Farhan: Fig. 5 and col. 5, lines 27-53). However, such an arrangement is well known in the art, as is evidenced by Johnson (Fig. 1, ref. 21 and 22 and col. 6, line 68-col. 7, line 11) and Petroff (Fig. 2, ref. 102 and 106 and col. 6, lines 19-29). It is implicit that such an arrangement only necessitates a single analog-to-digital converter instead of one converter for each input, thus decreasing the number of analog-to-digital converter needed in the system. It would have been obvious to one skilled in the art at the time of the invention use a multiplexer to combine signals before performing analog to digital conversion in order to implement the system with a single analog-to-digital converter instead of one converter for each input.

Conclusion

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Krimmel (USPN 6,134,035) see entire document which pertains to an optical network termination unit for a hybrid fiber/coax access network.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Daniel J. Ryman whose telephone number is (703)305-6970. The examiner can normally be reached on Mon.-Fri. 7:00-5:00 with every other Friday off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Huy Vu can be reached on (703)308-6602. The fax phone number for the organization where this application or proceeding is assigned is (703)308-6743.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703)305-3900.

Daniel J. Ryman
Examiner
Art Unit 2665

DJR

Daniel J. Ryman

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